

PROCEEDINGS
OF THE
Hawaiian Entomological Society

VOL. VII, No. 2.

FOR THE YEAR 1928

DECEMBER, 1929

JANUARY 5, 1928

The 264th regular meeting of the Hawaiian Entomological Society was held at the H. S. P. A. Experiment Station at 2:30 p.m. President E. H. Bryan, Jr. in the chair. Other members present were: Messrs. Crawford, Ehrhorn, Giffard, Hadden, Pemberton, Rosa, Swezey, Van Zwaluwenburg, Willard, and Williams.

Minutes of the 263rd meeting were read and approved.

The secretary reported that the Executive Committee at a meeting held January 5, 1928, had appointed the following officers for the year 1928:

Librarian, F. C. Hadden,

Custodian of Collections, F. X. Williams,

Editor of the Proceedings, O. H. Swezey.

The committee also had approved the payment of a bill in the amount of \$137 from The Honolulu Star-Bulletin covering the cost of printing the Index to Vol. VI, Proceedings of the Hawaiian Entomological Society, at a rate of \$5.50 per page.

Mr. D. T. Fullaway, who was appointed to audit the Treasurer's accounts for the past year, reported that the audit had been made and the accounts found correct.

Mr. E. P. Mumford was elected an active member of the society.

The secretary read a paragraph from a letter he had received from Mr. J. A. Hyslop, in Charge of the Insect Pest Survey of the U. S. Bureau of Entomology, asking for periodical reports on insect conditions in Hawaii. The members were of the opinion that furnishing such information for the Bureau of Entomology would be a proper activity of the society. Upon motion by Mr. Giffard,

it was voted to designate O. H. Swezey, Exp. Station, H. S. P. A., D. T. Fullaway, Board of Agriculture and Forestry, and J. F. Illingworth, Hawaiian Pineapple Growers Association Exp. Station, as a permanent committee to catalogue the insect pests of Hawaii and to provide information such as that requested in the above communication. The idea was that the committee should bring before the society for consideration any reports on insect conditions in Hawaii that were intended for the insect pest survey of the Bureau of Entomology.

After a lengthy discussion and upon motion by Mr. Swezey, Mr. Giffard was appointed as a committee of one to formulate a resolution setting forth the necessity of obtaining a competent specialist to work on parasitic Hymenoptera in Hawaii.

PAPERS

"*Xenos auriferi* Pierce in Hawaii," (Strepsiptera).

BY O. H. SWEZEY

NOTES AND EXHIBITIONS

Listroderes apicalis Waterhouse.—Mr. Swezey exhibited the larva of a curculionid beetle, apparently of this species. It had been received from Mr. W. T. Pope of the U. S. Agr. Exp. Station who had received it Dec. 10, 1927 from Mr. Goff in Hilo, Hawaii, where it was reported as injurious to lettuce. This is the first time the larva of this beetle has been observed on Hawaii. The beetles themselves were found quite common by Mr. Swezey in tufts of grass on the Parker Ranch in May, 1926. (See Proc. Haw. Ent. Soc., VI, pp. 360 and 367, 1927.) This is no doubt going to become a serious garden pest, for in California it has recently been reported as becoming a pest on such common garden vegetables as beets, radishes, lettuce, parsnips, carrots, potatoes, tomatoes, etc.

Polistes aurifer Sauss.—Mr. Van Zwaluwenburg reported the collection of hairworms, *Gordius* sp., reared from adults of this wasp by Mr. Swezey.

Amblyteles rufiventris (Brulle).—Dr. Williams exhibited three specimens of this ichneumonid, two were reared July 5, 1925 by

Mr. Swezey from two pupae of *Vanessa cardui*, and the third by F. X. Williams, July 15, 1927, from a pupa of *Vanessa huntera*. All were from Tantalus and were identified by Mr. Cushman as *Amblyteles rufiventris* (Brulle), var. or variation. It has a wide distribution in temperate America.

FEBRUARY 2, 1928

The 265th meeting of the Hawaiian Entomological Society was held at 2:30 p.m. at the H. S. P. A. Experiment Station, President Bryan presiding. Other members present were: Messrs. Ehrhorn, Fullaway, Giffard, Hadden, Illingworth, Mason, Rosa, Swezey, Wilder, Willard and Williams.

The Minutes of the 264th meeting were read and approved as corrected.

Mr. Giffard reported that after conferring with O. H. Swezey, Entomologist, H. S. P. A., and D. L. Crawford, President of the University of Hawaii, he had formulated the following resolution:

"Whereas parasitic insects constitute the most important factor of control of insect pests in Hawaii, and

"Whereas the success of parasitic control in Hawaii has in the past been possible, in part, because of the employment of highly trained specialists who could immediately study and determine such parasites in their relationships to their hosts as soon as consignments were received from abroad, thereby, in good measure, preventing the introduction and distribution of harmful "secondary" parasites (hyperparasites), and

"Whereas there is still much work to be done on similar lines with the more or less minute native parasitic insects which to a great extent are responsible for "nature's balance" in our forests, knowledge of the habits and life histories of which have in the past been so helpful and necessary in local economic entomology, and

"Whereas the previous employment of Dr. R. C. L. Perkins and later of Mr. P. H. Timberlake, both trained specialists in these groups, but now unavailable for such immediate work, made it possible to study and determine with dispatch the genera and species of parasitic Hymenoptera particularly the more minute Hy-

menopterous parasites of the group *Chalcidoidea* which have proved so highly beneficial to Hawaiian agricultural and horticultural industries, without having to communicate with other specialists at a distance, and

"Whereas local entomologists while abroad on special parasitic field research work need special advice as to the identity of insects to be sent to Hawaii, and since the departure (1924) of Mr. Timberlake, who specialized in the study and determination of such insect parasites, there has been a distinct lack which at some critical time might be exceedingly serious,

"Be it resolved therefore—That the Hawaiian Entomological Society urges upon those most interested financially or otherwise, the great need for such a specialist as above indicated and expresses the hope that some eminent, well known and trained specialist on the groups of minute parasitic insects may be brought to Honolulu, and

"Be it further resolved—That a copy of these resolutions be sent to the several research institutions in Honolulu for their consideration and for such action as they may deem advisable."

Upon motion by Mr. Swezey, it was unanimously voted to adopt the resolution as read.

Mr. Swezey read a letter and radiogram from Mr. E. P. Mumford who is now in California, asking for a group photograph of the entomologists in Hawaii. It was voted to temporarily adjourn and have the photograph taken.

After the meeting had again been called to order, Mr. Wilder presented to the Society a fascicle of Part IV, Coleoptera, "Insects of Samoa," which is being published by the British Museum.

PAPERS

"The Earliest Described Hawaiian Insects."

BY O. H. SWEZEY

Mr. Swezey read the following paper and presented it for publication:

"Some Remarks on Function as a Base for Classification, and its relationship to Form."*

BY F. MUIR

NOTES AND EXHIBITIONS

Coptotermes formosanus Shiraki on Kauai.—Mr. Fullaway reported that the ground inhabiting termite was found in the vicinity of the landing at Hanalei on January 13, 1928. This is the first record of the insect occurring on Kauai.

Crossotarsus externedentatus Fairm.—Mr. Giffard reported that this scolytid was found dead in more or less numbers embedded in the gum of *Eucalyptus citriodora* situated on the County road at Waialua, Oahu. The tree was full-grown, apparently quite healthy in both branches and foliage, but all the bark on the trunk to a height of over 30 feet was heavily coated with an exudation of dark gum. Examination revealed numerous borer holes into the heart of the trunk and apparently the excessive exudation of gum had been caused by the attack of the borer. It was also noticed that during construction of the County highway, workmen had chopped into the larger root system close to the trunk, and a temporary or otherwise unhealthy condition of the tree may have been the primary cause of the borer attack. The occurrence of similar insect attack on eucalypts on Oahu is uncommon although some other trees, indigenous and introduced, have been found attacked by the same borer—e.g. *Acacia koa* by Blackburn, avocado by Terry and Giffard, and *Elaeocarpus*, *Kukui*, *Albizzia*, *Eugenia*, and *Maba*, by Swezey.

Scolytid in Fig tree.—Mr. Giffard stated that during December last after transplanting several full-grown common fig trees (*Ficus carica* L.), he noticed shortly afterwards that the terminal branches of two of these had been attacked by a small borer. Detaching a couple of the smaller terminals for further examination he finally bred from these during the following month a large series of a small scolytid, which has been previously bred from *Ficus bengalensis*. Both fig trees which were attacked were noticeably unhealthy when removed and died before the end of January. From

* Published in Proc. Haw. Ent. Soc., VII, pp. 135-145, 1928.

the same twigs two microlepidoptera were also bred, (*Ereunetis minuscula*).

Apelma brevis Johannsen.—This tiny midge, omnipresent in the water pockets in the axils of pineapple leaves, has been recently described by Johannsen as a new species. (Ent. Soc. Wash. vol. 29, p. 205, 1927). Dr. Illingworth has found the larvae and pupae everywhere in the fields. The flies are easily bred out by keeping the larvae in water with green algae. The pupae are active and somewhat resemble those of mosquitoes. On emerging the flies rest for a considerable time on the surface of the water, and appear loath to fly away.

Telenomus nawai Ashm.—That this armyworm egg-parasite was able to persist through the past summer in the absence of any armyworm outbreaks on Oahu, was noted by Mr. Swezey who had found egg masses of *Spodoptera mauritia* Boisd. on Ficus leaves at Kamehameha School grounds during November, December and January, and always some of them were parasitized. Also he had found two egg-masses of the same moth on Ficus and palm respectively in the park at Waialua Agricultural Co.'s office, Jan. 20, and on one of the egg-masses were 11 of the parasites busy ovipositing, while on the other were 13 parasites.

Bactra truculenta Meyr.—Mr. Swezey reported having found this nutgrass moth established at Waimanalo, Jan. 19, which adds another district to its known dispersal on Oahu.

Larra luzonensis Rohwer.—Mr. Swezey reported finding this mole cricket parasite established at Waimanalo, Jan. 19. This adds another district to its known distribution on Oahu, so that now it probably has reached all places inhabited by the mole cricket.

Athesapenta cyperi Marshall.—Mr. Swezey announced that he had recently received a name from Dr. Marshall for the barid weevil introduced from the Philippines in 1925 as an enemy of nutgrass, *Cyperus rotundus*. Its larvae bore down the stem and eat out the underground corm. It has already become well established at the Exp. Station, H. S. P. A. grounds, the U. S. Agr. Exp. Station, and the University of Hawaii. Dr. Marshall found it to be a new species, the description of which would appear in an early number of the Bulletin of Entomological Research.*

* Bull. Ent. Research, XVIII, p. 266, 1928.

MARCH 1, 1928

The 266th meeting of the Hawaiian Entomological Society was held at 2:30 p.m. at the H. S. P. A. Experiment Station. President Bryan in the chair. In the absence of the Secretary, the President asked Mr. Van Zwaluwenburg to act in that capacity. Other members present were: Messrs. Ehrhorn, Fullaway, Giffard, Hadden, Illingworth, Mason, Pemberton, Rosa, Swezey and Williams.

The minutes of the 265th meeting were read and approved as corrected.

The Acting-Secretary read letters from Messrs. Agee, Crawford and Dean replying to the Society's resolution recommending the addition of an expert in the Chalcidoidea to the entomological forces of the Territory. No definite action was reported. A letter was read from Mr. J. A. Hyslop regarding the activities of the Society's permanent insect survey committee, in which he suggests monthly reports from this committee.

Mr. Swezey read a leaflet by Dr. C. W. Stiles containing the amendments to the international rules of zoological nomenclature adopted at last summer's Budapest congress. The suggestion that these amendments be reprinted in the Proceedings was approved by the Chair.

Amendments to the International Rules of Zoological Nomenclature

Important Notice to Zoologists, Physicians, Veterinarians, and Others using Zoological Names

[From the PUBLIC HEALTH REPORTS, October 28, 1927, pp. 2639-2640, issued by the United States Public Health Service]

Upon unanimous recommendation by the International Commission on Zoological Nomenclature, the International Zoological Congress which met at Budapest, Hungary, September 4-9, 1927, adopted a very important amendment to article 25 (Law of Priority) which makes this article, as amended, read as follows (*italicized type represents the amendment; roman type represents the old wording*):

ARTICLE 25. The valid name of a genus or species can be only that name under which it was first designated on the condition—

(a) That (*prior to January 1, 1931*) this name was published and accompanied by an indication, or a definition, or a description; and

(b) That the author has applied the principles of binary nomenclature.

(c) *But no generic name nor specific name published after December 31, 1930, shall have any status of availability (hence, also, of validity) under the rules, unless and until it is published either—*

(1) *With a summary of characters (seu diagnosis; seu definition; seu condensed description) which differentiate or distinguish the genus or the species from other genera or species;*

(2) *Or with a definite bibliographic reference to such summary of characters (seu diagnosis; seu definition; seu condensed description). And further—*

(3) *In the case of a generic name, with the definite unambiguous designation of the type species (seu genotype; seu autogenotype; seu orthotype).*

The purpose of this amendment is to inhibit two of the most important factors which heretofore have produced confusion in scientific names. The date January 1, 1931, was selected (instead of making the amendment immediately effective) in order to give authors ample opportunity to accommodate themselves to the new rule.

The Commission unanimously adopted the following resolution:

(a) It is requested that an author who publishes a name as new shall definitely state that it is new, that this be stated in only one (i. e., in the first) publication, and that the date of publication be not added to the name in its first publication.

(b) It is requested that an author who *quotes* a generic name, or a specific name, or a subspecific name shall add at least once the author and year of publication of the quoted name or a full bibliographic reference.

The foregoing resolution was adopted in order to inhibit the confusion which has frequently resulted from the fact that authors have occasionally published a given name as "new" in two to five or more different articles of different dates—up to five years in exceptional cases.

The three propositions submitted by Dr. Franz Poche, of Vienna, failed to receive the necessary number of votes in commission to permit of their being recommended to the Congress. Out of a possible 18 votes for each proposition, Poche's proposition I received 9 votes, II received 6 votes, and III received 7 votes.

Zoological, medical, and veterinary journals throughout the

world are requested to give to the foregoing the widest possible publicity in order to avoid confusion and misunderstanding.

C. W. STILES, *Secretary to Commission.*

PAPERS

Mr. Swezey presented a paper by Mr. Muir entitled:

"Parallelisms between the Insect Fauna of Hawaii and that of Samoa."

A paper: "Status of Sugar Cane Pests in Hawaii in the year 1927," by Mr. Swezey, was read by the author. This is a part of the survey committee's report which has been prepared for Mr. Hyslop's Insect Pest Survey.

NOTES AND EXHIBITIONS

Aphidencyrus inquisitor (Howard).—Mr. Swezey stated that the secondary parasite of aphids that has been known under the name of *A. schizoneuræ* (Ashm.) has been placed as a synonym under *A. inquisitor* (Howard) by Gahan (Proc. U. S. Nat. Mus., 71, No. 2676, art. 4, p. 18, 1927). He also reported having reared this hyperparasite from parasitized aphids on sugar cane in greenhouses at the Experiment Station, H. S. P. A., February 4, 1928. From three leaves infested with *Aphis sacchari*, 63 *Aphelinus maidis* were obtained, and 26 of the *Aphidencyrus inquisitor*, a hyperparasitism of 29 per cent. This is much lower than some observations made a few years ago, when the hyperparasitism went up to nearly 100 per cent. Five *Lysiphlebus testaceipes* issued from the same lot.

Bactra truculenta Meyrick.—Mr. Swezey reported finding this introduced nutgrass moth established and widely spread at Waianae and Makaha. It is now very generally spread throughout the island.

Xiphidiopsis lita Hebard.—Mr. Swezey reported the finding of this insect at Makaha on February 13. Thus it is now known to have spread to the outer parts of the island of Oahu.

Archytas cirphis Curran.—Mr. Pemberton reported this fly very common on the island of Hawaii from Hilo to Waipio Gulch, in the cane, and doing effective work. This is the first year that no armyworm damage has been reported by the plantations along this coast.

Orya chinensis (Thunb.).—Mr. Pemberton reported finding this insect at Honokaa, the first record from the Hamakua coast.

Tarsonemus spinipes Hirst.—Mr. Pemberton reported that the common cane stalk mite, previously known here as *T. bancrofti* Michael, has been identified, after comparison with type material by Miss Susan Finnegan of the British Museum, as *T. spinipes* Hirst. This mite is known to occur in Barbados and Porto Rico also.

Copris incertus var. *prociduus* (Say).—Dr. Williams reported the establishment of what seems to be this species or variety of dung beetle on the island of Maui. One specimen was taken February 11, 1928, being exhumed from its rather deep cylindrical burrow at the margin of some cattle manure at Waikapu, on the hills back of Wailuku. The species is well established, as 37 cattle droppings showed signs of the beetle's work. The beetle was introduced in September, 1923, from Orizaba, Mexico, by H. T. Osborn.

Coptotermes formosanus Shiraki.—Mr. Fullaway reported the first case of infestation by this termite on the island of Kauai, where it was found in January at Hanalei, confined to the immediate vicinity of the wharf.

Rice borer.—Mr. Fullaway exhibited specimens of a pyralid stem-borer in rice, found today infesting 129 acres of rice near Ewa, Oahu. No adults have been obtained yet from this material.

Metriona bicolor (Fabr.).—Mr. Bryan exhibited a specimen of this "golden tortoise beetle," which had been collected by S. H. Au, member of the University of Hawaii entomological class, at the Honolulu fish market, Oct. 20, 1927. The presence near the place of capture of various kinds of vegetables brought from California suggests its means of transportation. Essig states that this species of leaf-beetle occurs throughout the North American con-

tinent, feeding on morning glory, sweet potato and related plants, and that it is frequently collected in all parts of California. This capture merely records a new immigrant, and does not mean that another pest new to the islands has become established here.

Mr. Bryan stated that while there are no native species of this family in Hawaii, the tobacco flea beetle, *Epitrix parvula* (Fabr.), and the bronze willow flea beetle, *Diachus auratus* (Fabr.) have been long established here, probably from California.

Brachymeria obscurata (Walker).—Mr. Swezey recorded *Danaus archippus* (Fabr.) as a host for this parasite, for the first time in Hawaii. On February 4, a dozen chrysalids of the butterfly were brought in by Mr. G. P. Wilder who had collected them from leaves of the crown flower, *Calotropis gigantea*, growing in his garden. *B. obscurata* issued from 4 of them February 11-16. The remaining chrysalids appeared dead and were dissected. Dead larvae or pupae were found in 3 of them. The other 5 no doubt had dead parasites in also, but they were not found. On February 14, 21 more of the butterfly chrysalids were brought in by Mr. Wilder. From these, 2 butterflies issued. The rest were dead, and 1 *B. obscurata* issued February 21. The others were dissected and 12 of them found to contain either larva or pupa of the parasite. One chrysalid contained a dead maggot of the tachinid *Frontina archipivora* Will.

APRIL 5, 1928

The 267th regular meeting of the Hawaiian Entomological Society was called to order at 2:40 p.m., at the H. S. P. A. Experiment Station, by President Bryan. In the absence of Mr. Willard, the secretary, Dr. F. X. Williams was appointed to fill the chair for the meeting. Other members present were: Messrs. Ehrhorn, Giffard, Illingworth, Pemberton, Rosa, Swezey, Van Zwaluwenburg, Whitney and Wilder.

The minutes of the preceding meeting were read and approved.

PAPERS

"Records of Immigrant and Recently Introduced Insects on Kauai."

BY O. H. SWEZEY

"Engytatus geniculatus Reuter, an Important Pest of Tomatoes in Hawaii."

BY J. F. ILLINGWORTH

"Preliminary Notes on Pests of Agricultural Crops of Kona, March 15, 1928."

BY J. F. ILLINGWORTH

NOTES AND EXHIBITIONS

The picture recently taken by Mr. Caum of the members of the Hawaiian Entomological Society was exhibited, and distributed at the society's expense.

Nesithmysus bridwelli Perkins.—Mr. Swezey exhibited a fine specimen of this native longicorn beetle found by him in its pupal cell in the trunk of a *Pelea clusiaefolia* tree on Waipio Ridge at an elevation of 1500 feet, March 3, 1928. The trees have numerous tunnels made by the larvae of this beetle. Mr. Swezey had previously collected several larvae, but failed to rear them. This is the first time that the adult has been taken in the Koolau Mountains, though some fragments were found in a *Pelea* tree at an elevation of 2000 feet, Kahana, September 4, 1927. The species was described from Mt. Kaala, where its habit of boring in *Pelea* trees was first discovered on November 11, 1926. The first beetle reared out on January 24, 1927.

Pseudococcus straussiae Ehrhorn.—Mr. Swezey reported the finding of a colony of this mealybug on a leaf of *Gouldia*, on Kau-muahona ridge, Oahu, February 25, 1928. The colony consisted of a single adult female with her numerous offspring surrounding her. *Straussia* is the usual host plant, and this is the first record on *Gouldia*.

Oreocrabro abnormis (Blk. and Cam.)—Mr. Swezey exhibited a male of this wasp reared from a nest found in a fallen, rotten koa log on the Waipio Ridge, Oahu, March 3, 1928. This is a rare wasp, but it has now been taken in widely separated regions on Oahu.

Exillis lepidus Jordan.—Mr. Giffard reported this anthribid beetle as having been bred in numbers by him, from the dead terminal branches of a *Plumieria* tree—a specimen exhibited.

Lagocheirus obsoletus Thoms.—Mr. Giffard reported seeing a large *Plumiera rubra* tree attacked by coleopterous larvae. The larvae were burrowing deeply into the main branches and portions of the trunk. Later an adult specimen of the cerambycid *Lagocheirus obsoletus* emerged from material gathered. This cerambycid on occasion attacks other trees and shrubs and has been known to kill large specimens of Hibiscus. Both adult, larvae and portion of tree showing where the larvae had bored largely through center of branch and trunk were exhibited. This beetle has been previously reported on Plumieria.

Mr. Swezey stated that *Lagocheirus obsoletus* also bores the living tissue of the Allamanda vine, but that it bred most commonly in dead Kukui (Aleurites) logs.

Oechalia sp.—Mr. Giffard reported having observed in August, 1925, at Kilauea, Hawaii, an *Oechalia* sp. (Hemiptera) preying for over 15 minutes on a caterpillar which was feeding on a fuschia tree. Kirkaldy has reported species of *Oechalia* as preying on the caterpillars of *Omiodes accepta*, *Scotorythra rara* and others. Specimen of *Oechalia* and caterpillar exhibited.

*Chilo oryzae**.—Mr. Rosa exhibited larvae, adults and eggs of what is thought to be this species. Mr. Van Zwaluwenburg stated that this Pyralid rice borer can now be found in every rice field on Oahu. The total area affected is between 1500 and 2000 acres. Pupae were taken in rice on March 13, from which adults have since been reared. Although half-grown larvae in captivity do attack corn and sugar cane in the absence of rice, examinations of cane and grass lands immediately adjacent to heavily infested rice paddies have to date failed to show any infestation by this species in sugar cane or wild grasses.

The larvae and pupae taken here correspond closely with Fletcher and Ghosh's descriptions and figures of *Chilo oryzae* (C. S. 1677. See Vol. 1, Proc. 3rd Entomological Meeting, Pusa, p. 390, plates 57, 58, 1919, and Proc. 5th Entomological meeting, Pusa, p. 89, 1923).

Mr. L. A. Whitney of the territorial quarantine office has on two occasions (March 21 and April 4, 1928) taken living larvae of

* It was later on ascertained that this insect is *Chilo simplex* (Butl.), occurring in Formosa and Japan.

apparently the same species in rice straw used as packing in shipments originating in Japan. In the literature *Chilo oryzae* is recorded from India and from Burma. Specimens he sent to Dr. Marlatt at Washington were likewise determined as *Chilo oryzae*?

An animated discussion followed. Certain rice growers have stated that they had first noticed the work of the borer in the fall of 1927. Mr. Whitney spoke of rice straw used in shipping bananas to California, as a possible source of *Chilo* infection and stated that because of this danger one big banana shipper had discontinued the use of this straw in packing. He exhibited two pupae of the rice borer that developed from larvae from rice straw from Japan and two others intercepted two days ago from the same source. He mentioned the interception of 3 species of termites at the port of Honolulu and identified by Dr. T. E. Snyder, as follows: *Kaloterms* (*Cryptoterms*) *piceatus* Sny. (No. 1210), *Coptoterms formosanus* Shir. (No. 1467) and *Kaloterms* (*Cryptoterms*) *piceatus* Sny. (No. 1572-C). A termite collected from the timbers of the wrecked schooner Amaranth, Jarvis Island, August 10, 1924, was *Kaloterms* (*K*) *immigrans* Sny.; and the one from a fallen coconut tree trunk, Washington Island, August 18, 1924, was *Kaloterms* (*Cryptoterms*) *hermsi* Kirby. He showed also an elaterid beetle found in grass packings from Japan, and specimens of the European earwig discovered last November under bark of oak cord-wood from Seattle. The insect, he said, was a bad pest of vegetables in Seattle. He furthermore stated that 17 species of insects had been found some years ago in soil about *Spiraea* roots. These statements stimulated a discussion of insect immigration and Mr. Pemberton stated that it was a great advantage to the Society to have Mr. Whitney attend the meetings, as often as his duties permitted, and give these important records of insect interceptions.

Mr. Ehrhorn brought up the question of the food of our Hawaiian *Camponotus* ant. Messrs. Ehrhorn, Pemberton and others were of the opinion that the food was not insects but honeydew. Mr. Ehrhorn spoke of the curious clustering habit or hibernation in drawers, etc., of this ant. Mr. Bryan recorded the first termite flight of this year as occurring March 21—and ever since.

Insects of breadfruit tree.—Mr. G. P. Wilder spoke of borers in breadfruit: *Oxydema fusiforme* Woll. in wind-broken branches; Xyleborus also bored dead twigs and the chloropid fly, *Rhodesiella tarsalis* Adams followed after this beetle's work. In addition, four species of nitidulid beetles were found associated with the tree.

Ergates spiculatus (Lec.).—Mr. Swezey exhibited the large obese larvae of the pine sawyer, *Ergates spiculatus*, a Pacific coast beetle that was recently found as larvae in coniferous lumber at Kahului, Maui. Several of the large larvae were found in imported nor'west lumber in Oct. and Nov., 1927.

Buprestis aurulenta L.—Mr. Bryan mentioned that a specimen of the metallic green buprestid, *Buprestis aurulenta*, had been taken by one of his students.

Proterhinus, balsam mount.—A very fine balsam mount of a Proterhinus beetle, with the aedeagus dissected out and alongside was exhibited by Mr. Giffard.

MAY 3, 1928

The 268th regular monthly meeting of the Hawaiian Entomological Society was held at 2:30 p.m. at the Experiment Station, H. S. P. A. President E. H. Bryan, Jr. presiding. Other members present were: Messrs. Ehrhorn, Giffard, Illingworth, Mason, Rosa, Swezey, Van Zwaluwenburg, Wilder and Willard. Mr. E. W. Rust was a visitor.

Minutes of the 267th meeting were read and approved.

The secretary read letters from Dr. L. O. Howard and S. A. Rohwer, relative to the resolution passed by the Society at its February meeting.

PAPERS

**"List of Lepidoptera at the Bishop Museum collected by
J. August Kutsche on Kauai in 1919 and 1920."**

BY O. H. SWEZEY

"*Sitophilus rugicollis* (Casey) in Hawaii."

BY O. H. SWEZEY

"Pests of pineapple in Hawaii."

BY DR. J. F. ILLINGWORTH

NOTES AND EXHIBITIONS

Amblyteles rufiventris (Brulle).—Mr. Swezey reported that Dr. Williams had collected two specimens of this ichneumonid at Pepeekeo, Hawaii, March 22, 1928. It is the first recovery of this parasite from the island of Hawaii.

Callithmysus microgaster Shp.—Mr. Swezey exhibited a fine specimen of this longicorn beetle which he had reared from a larva found beneath the bark of a fallen Bobea tree, on the Pupukea-Kahuku Military trail, Feb. 15, 1928. This larva was put into a piece of sugar cane, and matured in April, the beetle having issued prior to April 18, when it was found dead in the cage.

Chilo simplex (Butl.).—Mr. Rust read several interesting letters from Mr. D. T. Fullaway, relative to his search in Japan for parasites of rice stem borer, *Chilo* sp. During the discussion which followed the reading of these letters, Mr. Van Zwaluwenburg stated that Mr. C. P. Clausen, who passed through Honolulu about two weeks ago, was of the opinion that the moth known as *Chilo simplex* in India, was entirely different from the one called *Chilo simplex* in Japan.

An interesting discussion took place relative to the advisability of placing a quarantine upon the entry of rice straw from the Orient into the United States. It seemed to be the opinion that such a quarantine would be very desirable if some substitute could be found to be used as packing material in shipments of merchandise from the Orient. The matter of fumigating rice straw under the supervision of officials in the country of origin did not seem to meet with much favor. The members thought that not enough is known of effective methods of fumigating rice straw, and that such packing material originates in so many parts of the Orient that fumigation at the point of origin would not be practicable.

Samoaan ants.—Mr. Bryan exhibited a large collection of Sam-

oan ants that had just been returned from the British Museum where they had been sent for identification.

Cryptotermes piceatus Sny.—Mr. Bryan exhibited a specimen of this termite which he found boring through the paper into a package that had just been prepared for mailing. The package had been wrapped only a short time and the finding of the termite, that had bored so far into the package that it was nearly concealed, shows how easy it is for insects to be carried by the movement of merchandise.

Lagocheirus obsoletus Thoms.—Mr. Wilder exhibited a specimen of this longicorn beetle found attacking the Allamanda. Eggs were deposited on the younger growth, where the newly hatched larva could enter easily. After reaching the pithy part of the stem the larva works downward into the older growth. When full-grown it forms a cocoon at the end of the channel where it pupates, the adult boring out through the stem. This beetle usually kills the plant.

A new host for Cremastus hymeniae Vier.—Mr. Rosa exhibited a specimen of this parasite that was reared from *Chilo simplex* collected in a field at Aiea on April 7, 1928. The adult issued on April 12th. The cocoon of *C. hymeniae* was found in a rice stalk in a cavity made by a *simplex* larva. The remains of the larva and larval head were found in this cavity together with the *C. hymeniae* cocoon. Comparison by Mr. Swezey of this larval head with another of about the same instar showed them to be the same.

JUNE 7, 1928

The 269th meeting of the Hawaiian Entomological Society was held at 2:30 p.m. at the Experiment Station, H. S. P. A. President Bryan presiding. Others present were: Messrs. Crawford, Illingworth, Rosa, Rust, Van Zwaluwenburg, and Willard. Mr. A. M. Adamson was a visitor.

Minutes of the previous meeting were read and approved as corrected.

Mr. E. W. Rust was elected an active member of the Society.

Mr. Bryan read a communication from Dr. Herbert E. Gregory, Chairman Committee on Pacific Investigations, National Re-

search Council. This communication stated that the officers of the fourth Pacific Science Congress to be held in Java, May 16th to 25th, 1929, had requested the National Research Council to compile lists of scientists to whom invitations should be extended. Dr. Gregory stated that the Committee on Pacific Investigations had voted to select entomologists from a list prepared by the entomologists residing in Hawaii, and the Hawaiian Entomological Society was asked to submit a list of about 20 men resident in the United States, exclusive of Hawaii and the Philippines.

Upon motion by Mr. Van Zwaluwenburg, it was voted that the chairman appoint one member to serve with the president in the preparation of such a list to be presented for approval at the next meeting. An extended informal discussion followed during which a number of men were suggested who are outstanding entomologists, with particular interest in the Pacific area, and whose names should be included in the list.

The secretary read a communication from Dr. C. L. Marlatt, Chief, Bureau of Entomology, Washington, D. C., which gave the results of an examination by Mr. Carl Heinrich of some specimens of the rice stem borer *Chilo* sp. which were forwarded to him on April 12th. The note from Mr. Heinrich is as follows:

"Det.—*Chilo* sp. This equals what we have in the collection as *Chilo simplex* (Butler) from Japan and the Philippines. It is probably that species and not *oryzae*, which is an Indian species. It is very doubtful if all that have been determined as *simplex* (especially from India) are that species. *Simplex* was originally described from Formosa and I'm inclined to think it is what they have in Hawaii."

Pleistodontes imperialis Saund.—Mr. Van Zwaluwenburg presented the following note for Mr. Swezey. This fig wasp was recovered by Mr. McEldowney at the Wahiawa nursery May 28, and at Manana the following day. Young trees of *Ficus rubiginosa* there have come into bearing, and are now producing fertile seeds, due to the presence of the wasp. It has reached the place itself, as none were ever taken there for liberation. This indicates the ability of this insect to spread around to wherever there may be bearing trees of this fig.

Chilo simplex (Butler).—Mr. Van Zwaluwenburg stated that

on May 31, in company with Mr. Rust and Mr. Rosa, at Honouliuli, he found the larvae of this rice-borer in the so-called "rice-grass" which is so common in rice fields. This grass was identified by Mr. E. L. Caum as *Echinochloa* probably *crusgalli* (L.). This is the first time that this insect has been found in the field on Oahu in any host other than rice. The infestation was rather common in fields of ripe rice, various instars of the larvae being found in this grass. On the same date several adults of *Polistes hebraeus* (Fab.) were observed preying upon *Chilo* larvae that they had either dragged from infested rice stubble or had found wandering about over the dried straw of harvested fields. The larvae were cut into pieces by the wasps, and the fragments worked into round balls preparatory to flying off with them. The wasps were very abundant flying low over the harvested paddies evidently scouting for the borer larvae. Among them was noted one *Polistes aurifer* Sauss. cruising about in the same fashion, but during the time this individual was observed it did not find a larva.

Mr. Rosa stated that on June 6 one adult of *Polistes hebraeus* (Fab.) was observed flying away with a *Chilo* moth. Another *Polistes* of the same species was found on a leaf of the so-called "rice grass" chewing another moth and working it into a ball.

Archytas cirphis Curran.—Dr. Illingworth stated having observed this parasitic tachinid very generally abundant. It is now abundant in Manoa Valley, around the University of Hawaii. Specimens come into his laboratory frequently. The flies are also abundant all over Kaimuki, even in the dry vacant lots. This is in marked contrast to the humid district along the Kona Coast of Hawaii, where he had recently found that the flies had thoroughly established themselves.

Scolia manilae Ashmead.—According to Dr. Illingworth this wasp is now exceedingly abundant in all of our pineapple growing districts, on all the islands. Hundreds of the males may be seen on any bright morning, flying over the surface of the ground in a single row. They pounce upon the females as they emerge from the soil. He has also noticed thousands of the wasps in the weed patches in vacant lots at Kaimuki. Since this parasite is now feeding almost exclusively upon the grubs of *Adoretus sinicus* Burm., we should soon see a marked reduction in the devastation caused by the rose beetles.

New Immigrant Beetles.—Mr. Bryan exhibited specimens of the following beetles which had been collected by members of his entomology class at the University of Hawaii. The determinations and notes are those of Professor E. C. Van Dyke, to whom the specimens were sent for identification. The specimens are in the University of Hawaii collection.

Stenolophus limbalis Lec.—University of Hawaii Farm, 1927, (C. E. Ashton).

"A rather common and widely spread species in middle and southern California."

Bembidium pacificum Black.—Honolulu, 1926, (Asao Doi); Honolulu, 1926, (K. P. Kawasaki); Kapaa, Kauai, 24-XII-27, (K. Ito).

"Your specimens run to what I have named in my collection as *pacificum*."

**Tarsostenus univittatus* (Rossi).—University of Hawaii Farm, 21-XII-27, (M. Maneki); also Honolulu, on dead wood, 22-IX-19, (C. E. Pemberton) in H.S.P.A. collection.

"A rather common Mexican clerid, often found in the mesquite or algaroba. It no doubt lives at the expense of some of the small species of *Lyctus*."

Agrilus sp.—A small buprestid, probably the same as that reported by Sharp in the Fauna Hawaiiensis, III, p. 400, 1908, as the specimen agrees with those in the Bishop Museum, was captured on the University of Hawaii Farm, 15-IX-27, by M. Maneki. Concerning it Professor Van Dyke writes, "It does not seem to agree with any of ours. It also may be Mexican."

Haltica sp.—Specimens of a chrysomelid captured on Maui, 1-I-15, were identified by Mr. Swezey as near *Haltica carinata*. Professor Van Dyke says, "This does not agree with *carinata* nor with any species that I am familiar with in this country. It may be Mexican."

JULY 5, 1928

The 270th regular meeting of the Hawaiian Entomological Society was called to order by President E. H. Bryan, Jr., at 2:30 p.m., at the Experiment Station, H. S. P. A. Other members present were: Messrs. Adamson, Illingworth, Mason, Rosa, Rust, Van Zwaluwenburg, and Willard. The following visitors were present: Dr. J. G. Needham, Professor of Entomology and Limnology, Cornell University; Dr. M. F. Guyer, Professor of Zoology, Uni-

* This is the undetermined clerid beetle recorded on page 359, Proc. Haw. Ent. Soc., IV, 1920. [Ed.]

versity of Wisconsin, and Dr. C. H. Edmondson, Professor of Zoology, University of Hawaii.

The minutes of the 269th meeting were read and approved.

The president introduced Prof. Needham who was returning from a year's visit to China, where he had been spending his sabbatical year studying the entomological situation and collecting insects. Dr. Needham gave a very interesting description of entomological work in China, describing the small Bureau of Entomology there, and calling particular attention to the difficulties under which entomologists in that country were obliged to work. Unsuitable housing and inadequate equipment were the principal handicaps.

Dr. Guyer was then introduced by the president and gave a brief talk.

Mr. A. M. Adamson was elected an active member of the society.

A report of the committee to recommend names of mainland entomologists who should be invited to attend the Science Congress in Java in 1929 was rendered. It was decided to bring this report up for discussion at the next meeting.

PAPER

"Grasshoppers Eat Pineapple Mealybugs and Other Pests."

BY DR. J. F. ILLINGWORTH

NOTES AND EXHIBITIONS

New Jassid on Tamarix.—Mr. Van Zwaluwenburg reported that Dr. Lyon had brought in a jassid which is seriously injuring *Tamarix aphylla*, and which appears to be an importation from California. He had noted it only within the past week. It is unlike anything in the Station collection and may prove to be *Eutettix osborni* Ball which has been recorded from California and Texas, and said by Olsen to be a synonym of *Euscelis (Athysanus) stactogallus* Fieb.

Unidentified Ichneumonid.—Mr. Van Zwaluwenburg exhibited some specimens of an unidentified ichneumonid reared from the rice stem borer *Chilo simplex* collected at Honouliuli by Mr. Rust.

This parasite is apparently new to Hawaii and the specimens have been sent to Washington for identification.

Reticulitermes speratus Kolbe.—The secretary reported for Mr. Whitney that a colony of termites intercepted by him in flowering *Prunus* sp. in baggage from Japan, had been identified by T. E. Snyder of the U. S. Bureau of Entomology as *Reticulitermes speratus*. The following quotation is from Dr. Snyder's letter: "These specimens are nymphs of sexual winged adults, soldiers, and workers of *Reticulitermes speratus* Kolbe, native of Japan. This is a very important interception, since as you know species of *Reticulitermes* are very destructive not only to the wood-work of buildings and their contents but also to vegetation."

AUGUST 2, 1928

The 271st regular meeting of the Hawaiian Entomological Society was called to order by President E. H. Bryan, Jr., at 2:30 p.m. at the Experiment Station, H. S. P. A. Other members present were: Messrs. Giffard, Illingworth, Mason, Rosa, Rust, Van Zwaluwenburg, and Wilder. Mr. W. B. Gurney, Government Entomologist of New South Wales, Australia, was present as a visitor.

In the absence of the secretary, the president appointed A. C. Mason to serve as secretary pro tem.

The minutes of the 270th meeting were read and approved after slight alterations.

The president reported that the society had recommended and forwarded to Dr. Gregory, Chairman of the Committee on Pacific Investigations of the National Research Council, the names of the following twenty mainland entomologists to be invited to attend the Fourth Pacific Science Congress in Java, May 16 to 25, 1929: Prof. J. M. Aldrich, Dr. E. A. Back, Prof. T. D. A. Cockerell, Prof. G. C. Crampton, Prof. R. W. Doane, Prof. E. O. Essig, Dr. H. E. Ewing, Prof. W. B. Herms, T. E. Holloway, Dr. L. O. Howard, J. A. Hyslop, Prof. V. L. Kellogg, Prof. Trevor Kincaid, Prof. H. H. Knight, Dr. C. L. Marlatt, Prof. A. L. Melander, Prof. H. J. Quayle, Dr. Thomas E. Snyder, Prof. E. C. Van Dyke, Prof. W. M. Wheeler.

The president then introduced to the society Mr. Gurney, who made a short address concerning his work in New South Wales. He also showed a box of specimens of injurious insects of Australia. Among the important pests, he mentioned: blow flies of sheep, white grubs in wheat, codling moths in fruits, red scale and white wax scale on citrus, and *Chloridea obsoleta* on alfalfa and certain fruit trees. Mr. Gurney is on a trip around the world and plans to attend the International Congress of Entomology at Cornell University, Ithaca, N. Y., Aug. 12-18, as well as to visit entomologists elsewhere in America and Europe. He expressed his pleasure of his visit to Hawaii, and appreciation of the help given him by the various members of the society while here. He also mentioned especially his gratitude to Mr. Swezey for sending a shipment of *Scolia manilae* to him at New South Wales.

NOTES AND EXHIBITIONS

Rice Borer and Adoretus Parasites.—Mr. Rust reported on the progress of parasite introduction for the rice stem borer and *Adoretus*. To date, 33,000 *Trichogramma japonicum* and 21,000 *Phanurus beneficiens* have been liberated in rice fields at Honouliuli, Kailua, and Kaneohe. Several cages of Japanese beetles parasitized by the yellow *Ochroa ormioides* Towns. have been received from Messrs. Fullaway and Hadden. No liberations have yet been made. *Cremastus hymeniae* has been observed in rice fields. A very similar insect, *Cremastidea chinensis* Vier., has been received from Japan. Cocoons of another larval parasite, *Amyosoma chilonis* Vier., have also been received.

Field hosts of Chilo simplex.—Mr. Van Zwaluwenburg mentioned the following new hosts of the rice stem borer recently found: *Echinochloa crusgalli* var. *cruspavonis* (H. B. K.) barnyard grass; infestation often so severe as to kill the grass. This grass is undoubtedly the most important host of the borer on Oahu between rice crops. *Echinochloa stagnina* (Retz.) Beauv., rice grass, not previously known from these islands. *Eleusine indica* (L.), goose grass. *Chaetochloa verticillata* (L.), foxtail grass. *Panicum barbinode* Trin., panicum grass. *Paspalum conjugatum* Berg., Hilo grass. Only short tunnels were found in this grass, indicating that it is too hard for the borer, or distasteful to it.

*Tamarix jassid**.—Mr. Van Zwaluwenburg reported that the new jassid attacking *Tamarix aphylla* reported for the first time at the last meeting of this Society, apparently attacks all trees of the genus indiscriminately. It has lately been taken at the H. S. P. A. Vineyard Street nursery on *Tamarix aestivalis*, *T. indica* and *T. africana*. The eggs of this insect are laid singly just under the epidermis of the woody growth, usually transversely with reference to the axis of the branch. Several specimens of what appears to be a primary egg-parasite have been reared; these have been referred to Mr. Timberlake for identification.†

Mr. Bryan reported that Mr. Adamson is now on his way to the Marquesas and Society Islands for a two years' trip in the interest of the Pacific Entomological Survey.

Mr. Van Zwaluwenburg reported that Mr. Pemberton had reached New Guinea and was making plans for a trip to the interior of the island in search of native sugar canes.

SEPTEMBER 6, 1928

The 272nd meeting of the Hawaiian Entomological Society was held at the Experiment Station, H. S. P. A., 2:30 p.m., President E. H. Bryan presiding. Other members in attendance were: Messrs. Crawford, Ehrhorn, Illingworth, Mason, Van Zwaluwenburg, Wilder, Willard and Williams.

The minutes of the 271st meeting were read and approved.

PAPER

Dr. F. X. Williams presented "Notes on the habits of the cockroach-hunting wasps of the genus *Ampulex*, sens. lat., with particular reference to *Ampulex (Rhinopsis) caniculatus* Say."

NOTES AND EXHIBITIONS

Mr. Ehrhorn reported briefly on his impressions gained at the meetings of the American Association for the Advancement of Science, Pacific Division, and the Pacific Slope Branch of the

* *Euscelis stactogalus* Am., det. by W. L. McAtee.

† Mr. Timberlake identified this egg-parasite as *Polynema saga* (Girault).

American Association of Economic Entomologists, which were held in Claremont, California, June 14, 15.

Termites in California.—Mr. Ehrhorn gave a talk on some of his observations on termites in California, both south and north. Much damage is being done by subterranean and dry-wood termites. There are eight species recorded from California. *Reticulitermes hesperus* is doing much damage to houses in many cities. *Termopsis angusticollis* also does damage to piling and walnut trees. *Kaloterme*s does similar damage to interior work as does our *Cryptoterme*s. Very little work has been done in the past to check termite damage in California, and only in the last six months has a real campaign been started. Mr. Ehrhorn exhibited specimens of *Reticulitermes hesperus* in all stages, also young and soldiers of *Termopsis angusticollis* and *Kaloterme*s *minor*. He also showed large photographs of the earthen tubes of *Reticulitermes* starting direct from a nest and reaching the floor timbers and pipes under buildings. Also photographs of damaged dwellings.

Mr. Bryan reported giving a talk on termites before the Chamber of Commerce of Kauai where damage by *Coptoterme*s *formosanus* had been found in the wharf at Hanalei. This infestation, the only one found on Kauai by this species had been under treatment by the Territorial Entomologist for some months. A very careful examination of the wharf was made by Mr. Bryan during his visit to Kauai which resulted in his finding evidences of termite work but no living termites were found.

Geococcus radicum Green.—Dr. Illingworth exhibited a root-cage with roots of pineapple plants infested with this mealybug. This pest has been previously reported on the roots of potted mango plants, koa and nutgrass. (See Proc. Haw. Ent. Soc. II, 108.) Mr. Ehrhorn determined the specimens on pineapple as belonging to this species and stated that he had also found it on palm roots, ferns, Caladium roots, and potted plants in general. It was originally described from Ceylon. This mealybug is very prolific on the roots of pineapple, especially when grown in observation boxes and root-cages. It is yet to be seen whether they multiply in this way in the field.

Tamarix leafhopper.—Mr. Van Zwaluwenburg reported that the jassid recorded previously from *Tamarix* spp. has been determined by Mr. W. L. McAtee as *Euscelis stactogalus* Am. This is

a European species described by Ball from California and Texas as *Eutettix osborni* on *Tamarix gallica*. It was also collected in Ohio and Missouri.

Nesopimpla naranyae Ashm.—Mr. Van Zwaluwenburg stated that Mr. R. A. Cushman has identified as this species the large ichneumonid bred from stems of rice infested by *Chilo simplex* (Butl.), and believed to be parasitic on this pyralid. A synonym according to Cushman is *Itoplectis immigrans* Timberlake. Timberlake appends the following to his original description (P. H. E. S., IV, p. 275, 1920): "This species does not occur on Oahu apparently, as it can hardly be the undetermined '*Pimpla*' species mentioned by Perkins (Fauna Hawaiiensis, 2, pt. 6, 1910, p. 676), since under any ordinary circumstances it would not be called 'commonplace'." As a matter of fact the insect under discussion was numerous enough in rice fields at Honouliuli in May to merit the term commonplace, and so may possibly be Perkins' "*Pimpla*" after all. Until found in association with the rice-borer this ichneumonid was known from the island of Hawaii only, where Mr. Swezey and Dr. Williams found it associated with an *Omiodes accepta* outbreak.

Concerning the reported occurrence of Anopheles on Oahu.—Mr. Van Zwaluwenburg noted that from time to time there is heard the report that *Anopheles* adults have been collected on Oahu by the Army authorities. This is of such real concern to the inhabitants of these islands, in view of the constant presence of malarial carriers among returned travellers, tourists, etc., that it is thought worth while to record here the facts as known. Dr. Harry L. Arnold of Honolulu, then Major, Medical Corps, United States Army, stationed on this island, states that eight or possibly nine years ago the United States Bureau of Entomology, U. S. Department of Agriculture, reported the presence of the thorax of an anopheline mosquito among the specimens submitted in a monthly sample sent in for identification from military posts on Oahu. No such finding has been reported since, although the periodic collection of mosquitoes at traps for examination by government entomologists has continued to be part of the routine of the Army Medical Corps.

Leptogenys falcigera Roger. var. *insularis* Smith.—Mr. Bryan reported an abundance of this ant at Puu Konanae, Kauai, above

the Anahola river at an elevation of about 300 ft. He exhibited a series of specimens of this insect and called attention to the little piles of pill bug and millepede remains outside the entrance to the holes in the soil leading to their nests. Mr. Bryan stated that the abundance of these ants in the locality mentioned was brought to his attention by Mr. Albert Horner, Jr.

Athesapenta cyperi Marshall.—Dr. Williams reported that this nutgrass weevil from the Philippines has been recovered from Pioneer Mill Co. plantation, a grub being found eating into a *Cyperus* corm on the edge of field O.10. Evidently it was introduced in the fall of 1926 along with the nutgrass moth *Bactra truculenta* Meyr., for some time well established on Maui.

The Mexican dung beetle, Copris incertus var. *prociduus* Say.—Dr. Williams stated that this dung beetle introduced by H. T. Osborn several years ago, and that was recovered in February, 1928, back of Wailuku, Maui, had been taken in cattle droppings far up Kauaula Gulch near Lahaina on August 30.

Dr. Williams reported the liberation of the following beneficial insects:

Rhinopsis caniculatus Say.—A female of this rare ampulicid wasp was taken in the town of Webster Groves, Missouri. It was confined in a quart jar from June 12 to July 18, and during this time stored over 50 wild roaches, *Parcoblatta* females only, with short wings, in hollow elderberry stems provided for them. The progeny of this single female issued from the end of July to the end of August, and consisted of 17 females and 25 males. At least the last 8 issuances were males. Seven males and eight females were released in and about Honolulu. The wasp will attack and parasitize the small field roach, *Loboptera sakalava*, here.

Scarites beetles.—One hundred and two beetles from Webster Groves, Mo., were liberated on Oahu Sugar Co. lands in June and August.

Anaphoidea calendrae Gahan.—About 600 of these wasps were liberated at Paauhau and 40 at the Manoa Substation, H.S.P.A., Honolulu, early in August.

Mr. Van Zwaluwenburg reported that Mr. F. C. Hadden of the H. S. P. A. Experiment Station is now in Foochow, China, collecting parasites for *Chilo simplex*.

It was also announced that Mr. Muir who has been absent in England for a year, and Mr. Swezey who has been attending the International Entomological Congress at Cornell University would return to Honolulu, Sept. 12th, also that Mr. Rosa is leaving

Honolulu Sept. 6th for Japan for the purpose of bringing back living parasites of *Chilo simplex*.

OCTOBER 4, 1928

The 273rd meeting of the Hawaiian Entomological Society was called to order at 2:30 p.m. at the Experiment Station, H. S. P. A., by President E. H. Bryan, Jr. Other members attending were: Messrs. Ehrhorn, Giffard, Illingworth, Swezey, Willard, and Williams. The following visitors were present: Mr. Hubert W. Simmonds, Government Entomologist of Fiji; Mr. Bernard Trouvelot, Entomologist for the Ministry of Agriculture in Paris, France; Mr. Q. C. Chock, Board of Agriculture and Forestry.

The minutes of the 272nd meeting were read and approved as corrected.

Mr. O. H. Swezey, Editor of the Proceedings of the Hawaiian Entomological Society, reported that the Proceedings for the year 1927 had been published and distributed. Upon motion by Mr. Ehrhorn, a unanimous vote of thanks was extended to Mr. Swezey for his efficient services as Editor of the Proceedings.

The president reported that he had received a check from the Hawaiian Sugar Planters' Association to be used in payment for the printing of the Proceedings for 1927.

Upon motion by Mr. Giffard, it was unanimously voted that the secretary should notify the trustees of the Hawaiian Sugar Planters' Association that the Hawaiian Entomological Society at its 273rd meeting had unanimously passed a resolution extending the thanks of the Society for their continued interest in our work, and for their generosity in paying for the printing of our Proceedings.

Mr. H. W. Simmonds in replying to an introduction by the president said: First I wish to express my deep appreciation of the more than kind welcome which I have received on all hands since my arrival here. Turning to the subject of Entomology in Fiji, I will not touch upon any of our economic problems, but will speak about a very interesting purely scientific matter which I have come across during the course of my work in the islands.

This has to do with the widely distributed butterfly *Hypolimnias bolina* Linn. This butterfly, as you are doubtless well aware, is found from India to Easter Island, and Fanning Island in this di-

rection, whilst recently it has spread to Madagascar. Throughout this wide range the males are similar, varying only slightly in size, but the females are extremely variable, although certain forms are characteristic of certain areas. In India the female is highly mimetic and it is this form which has reached Madagascar. Nowhere, however, has the butterfly developed such a wide range of variation as in the Fijian group, although, even here, certain islands have distinctly characteristic types. The matter however of which I wish to speak is one of sex. When in the Society Islands, I found that males were apparently greatly in excess of females. I say apparently because, upon breeding, I found that the sexes were approximately equal and the apparent excess of males was brought about by a number of females somewhat approaching the males in appearance and thus escaping notice. In certain islands of the Fijian group, the sexes appear to be equal, but in others, the opposite condition to Tahiti occurs, the females seemingly to enormously exceed the males. This also applies to part of Samoa.

In order to test this and also to obtain variation data, I caught a number of wild females and induced them to oviposit in captivity. These females were mostly caught on the island of Viti Levu, one of the islands where the females so largely exceed the males. I have however obtained one all female family from the island of Vanua Levu. When my first brood emerged, to my surprise, they were all females, and this state of affairs was repeated in the whole of the 16 wild females from which I bred that year. During the two following years I was away from Fiji and unable to continue the work, but in 1926, I again took it up. At this time I was successful in obtaining two families from wild Viti Levu parents simultaneously, one of which was all females, the other mixed. From these, using the males from the mixed family, or at times wild males, I was able in one case to carry the all female family to (speaking from memory) the seventh generation without producing a single male, although males from the mixed family paired with one of their own sisters produced both sexes. Mathematically this state of affairs should lead to the extermination of the race and may possibly account for the passing of some of the powerful organisms of the past.

Mr. Swezey then asked as to the present position of the moth *Levuana iridescens* Beth.-Baker in Fiji, to which Mr. Simmonds

briefly replied that except in three small areas it had completely cleared up.

Mr. Trouvelot gave a short talk in which he outlined the tentative plans for the next International Congress of Entomologists to be held in Paris, France, in 1932.

NOTES AND EXHIBITIONS

Chilo simplex (Butl.).—Mr. Rust reported that the Board of Agriculture and Forestry had just received from Kauai, some rice straw infested with this stem borer. He stated that the straw came from Huleia, about six miles from Lihue. It was evident from discussion that followed, that this insect had only recently reached Kauai. It was noted that several entomologists have made careful surveys of rice fields on Kauai during the past several months, and had found no signs of the borer. Several theories were advanced as to how this insect had been transported from Oahu to Kauai since there is a strict quarantine on the Inter-Island movement of rice straw from Oahu.

Coptotermes formosanus Shiraki.—Mr. Ehrhorn exhibited some Ohia paving blocks from the Honolulu Iron Works store room, Queen St., showing attack by this termite. He stated that it was not generally known that termites would feed on this hard wood.

Diabrotica soror Lec.—Dr. Illingworth exhibited a specimen of this chrysomelid that he found crawling on California vegetables in a local grocery store. He stated that the waste material from this store was taken to a local piggery near vegetable gardens where this insect might easily become established. This instance shows how injurious insects may be imported in shipments of vegetables regardless of the thoroughness of plant quarantine inspection.

Eopenthes parvulus Shp.—Mr. Van Zwaluwenburg reported that Mr. E. H. Bryan on June 24 collected on the Pupukea trail at an elevation of 1400 feet, 10 adult *Eopenthes* on *Scaevola*. Of these nine are males and agree with Sharp's description of *E. marginatus*; the single female in the lot is *E. parvulus* Sharp. The finding of the two species associated together on the same host adds force to Sharp's suggestion that "*marginatus* . . . is at present a doubtful

species. It may prove to be a variety of the male of *E. parvulus*." The male of *parvulus* has never been recognized; the possibility is strong that *marginatus* is really the male of that species.

Fourth International Entomological Congress.—Mr. Swezey gave a very interesting account of the International Congress of Entomology which he had attended at Ithaca, N. Y., Aug. 12-18. He outlined the program of the meetings and mentioned some of the prominent entomologists present, both from America and foreign countries. He also described the excursions provided for those in attendance and outlined the interesting phases of some of these excursions.

Vermileo opacus (Coq.).—Mr. Swezey exhibited larvae of this dipteran of the family Lamphromyiadae collected by him in Yosemite Valley, Calif., in June, 1928. The peculiar interest in them being their habit of living in pits in dry dust similarly to the pits of antlion larvae. Dr. W. M. Wheeler had called attention to their presence in the valley, and Mr. E. O. Essig was studying them at the Museum in the Park. The pits of this dipteran were very numerous in many places in the Park, in dust beneath projecting rocks at the side of trails; dusty places at base of large tree trunks; and other dry bare places where the ground was not tramped on. Sometimes there were a few antlion pits in the same places. These were a little larger, being broader in proportion to their depth. A few small long winged flies were obtained as they were found hovering over or alighting on the dust where the pits were located, and it is presumed that they are the adults belonging to the larvae in the pits.

New Zealand Coleoptera.—Mr. Bryan exhibited a collection of New Zealand beetles received at the Bishop Museum from Mr. Albert E. Brookes, Okania, Matamata, Waikato. He read a portion of a letter from Mr. Brookes which said that a specimen of the Hawaiian weevil *Oodemas oblongum* Perk., and one or two *Carpophilus* had been captured in New Zealand.

NOVEMBER 1, 1928

The 274th meeting of the Hawaiian Entomological Society was held at 2:30 p. m. at the Experiment Station, H.S.P.A. President E. H. Bryan in the chair. Other members attending were:

Messrs. Chock, Ehrhorn, Fullaway, Hadden, Illingworth, Mason, Rust, Swezey, Wilder, Willard and Williams. Mr. Noel Krauss, a student at the University of Hawaii, was a visitor.

Minutes of the 273rd meeting were read and approved.

Mr. Q. C. Chock was elected as an active member.

Mr. Swezey reported that the Pan-Pacific Union was promoting the second Pan-Pacific Food Conservation Conference to be held in Honolulu, 1931.

A letter was read by Mr. Swezey from Mr. P. Van der Goot of Buitenzorg, Java, asking for information on Hawaiian insect pests and their parasites to help him in the preparation of a paper for the coming Pacific Science Congress to be held in Java, May, 1929. At the request of the president, the members agreed to send this information for groups in which they were particularly interested.

Mr. Swezey read also, a letter from H. T. Osborn which gave a very interesting account of insect pests attacking sugar cane in Porto Rico.

PAPERS

"Parthenogenesis in a Phasgonurid, *Xiphidiopsis lita* Hebard, in Hawaii."

BY O. H. SWEZEY

"The hosts of *Cremastus hymeniae* Viereck in Hawaii."

BY O. H. SWEZEY

NOTES AND EXHIBITIONS

ⁱ *Scolopendra subspinipes* Leach.—Dr. Williams read some correspondence he had with Dr. F. Carl, Museum D'Histoire Naturelle de Geneve, Switzerland, re the identity of a series of *Scolopendra* centipedes he sent to Dr. Carl for determination, since there was a question in the minds of some of the entomologists of Hawaii as to whether there was not more than one species of the genus in our Islands. The shipment included small blue or greenish-headed specimens, large brownish mature ones, and others intermediate in size and somewhat in color. Dr. Carl's answer, of February 13, 1928, was as follows: "The lot of centipedes you sent me contains

one species only, viz.: *Scolopendra subspinipes* Leach and its young. It is a very widely distributed species, a tropical cosmopolite or nearly so. I shall send you back some specimens of the lot. *Millipeds* (*Diplopodes*) of the Hawaiian Islands, black cylindrical forms, would be very welcome for study."

Rice borers and parasites.—Mr. Hadden exhibited a Schmitt box which contained a collection of rice stem borers and parasites which he collected during his recent trip in the Orient.

Scutigerella immaculata (Newport).—Dr. Illingworth reported sending specimens of the common symphylid, which is a serious pest of pineapple roots, to Dr. H. E. Ewing, U. S. National Museum. Ewing (Sept. 18, 1928) has verified Illingworth's determination as above. This is the so-called garden centipede that gives trouble to truck crops in California, particularly asparagus in the Sacramento valley.

Metriocnemus sp. (Chironomidae).—Dr. Illingworth reported that Dr. J. M. Aldrich has identified a tiny green midge which he had bred out from water cultures. The larvae of these flies construct tubes on the walls of the dishes, reaching their heads out to feed and retracting when disturbed. In this way they resemble the much larger *Chironomus hawaiiensis* Grimshaw, the so-called blood worms in water. Dr. Aldrich says, "This genus is principally characterized by having hairs on the surface of the wings. Two specimens have been previously bred from material collected in a lily pond by Mr. Swezey.

Scenopinus lucidus Becker.—Flies collected on ripe pineapples on the Island of Lanai by Dr. Illingworth (8/30/27) have been determined as this species by Dr. Aldrich of the U. S. National Museum. He states (9/18/28) that this species was described from Egypt by Becker in *Mittel. Zool. Mus. Berlin*, II, 39, 1902. And also adds, "I believe it has not been recognized from other places."

Desmometopa tarsalis Loew.—Specimens of a tiny black fly collected on a window in the laboratory, by Dr. Illingworth, were sent by him to the U. S. National Museum for determination. Dr. Aldrich, writing Sept. 18, 1928, states: "In looking up this species I came to the conclusion that the specimens sent by you some time ago and identified as *m-nigrum*, are the same and I must have erred

in the determination the other time which is the more regrettable as you say. you have already published a note on these species. I have compared with European specimens of *m-nigrum* which are certainly distinct." The former specimens referred to were bred out from hen manure by Dr. Illingworth (See Proc. Haw. Ent. Soc. VI, 224).

Milichiella circularis Aldrich.—This fly is apparently a recent arrival in the islands. It was first collected near a large compost heap by Mr. Swezey, Sept. 9, 1926 (See Proc. Haw. Ent. Soc. VI, 378). Later, Dr. Illingworth collected this fly in swarms near a rubbish dump in Manoa Valley. (See same VII, 29.) Dr. Illingworth sent specimens to the U. S. National Museum for determination, June 4, 1928. Dr. Aldrich has decided that this is a new species, and has drawn up a description to be published as soon as possible.

Holochlora japonica Brunn. and *Elimaea punctifera* (Walk.)—Mr. Ehrhorn reported the abundance and severe damage done by these two locustids on hibiscus and tender mango leaves. He captured 26 adult *Holochlora* with a net, and out of this number six were females and 20 males. He exhibited egg-masses of *H. japonica* from which parasites (*Anastatus koebelei* Ashm.) had begun to issue. These egg-masses were found in stems of hibiscus, bougainvillea, avocado, and mango.

Megachile schauinslandi Alfken.—Mr. Ehrhorn exhibited a small rubber tube containing a nest of this bee. The cells of the nest were separated by mud partitions. From these cells several adults of this species had issued by cutting exit holes through the rubber tube.

Adrapsa manifestalis (Walk.)—Mr. Wilder exhibited a specimen of a black moth which was captured by him Oct. 28, 1928, on the glass window of his residence in Honolulu.

Megachile palmarum Perkins.—Mr. Swezey exhibited a nest of this bee made from yellow petals, probably of the golden shower tree. It was found Oct. 8th between fastened together leaflets of coconut where there had been caterpillars of the coconut leafroller. From the nest five female bees had issued. A short while previously he had reared five males from a nest in a similar situation but composed of pieces of leaves as usual.

Hippelates nigricornis Thomson.—Mr. Bryan reported the abundance of this fly on Oahu breeding in rotting vegetable material. He stated that it had been collected frequently on Oahu from 1906 to date, but apparently had not been recorded. It is recorded from Palmyra Island by Swezey, as *Hippelates* sp. in Proceedings Hawaiian Ent. Soc. III, p. 16, 1914. In the Bishop Museum Bulletin No. 31, p. 70, 1926, it is recorded by Bryan from Ocean Island, Midway Island, Lisiansky Island, and Wake Island.

DECEMBER 10, 1928

The 275th regular meeting of the Hawaiian Entomological Society was held at 2:30 p.m. at the H.S.P.A. Experiment Station. President E. H. Bryan, Jr., and other members present were: Messrs. Fullaway, Illingworth, Mason, Rosa, Rust, Swezey, Willard and Williams. Mr. J. M. Blackman, Morton H. Cassidy, Chester E. Frowe and Mrs. G. Cassidy were visitors.

The minutes of the 274th meeting were read and approved.

The treasurer's report for the year ending December 10th was read and approved subject to audit.

The following officers were elected for 1929:

President, O. H. Swezey.

Vice-President, L. A. Whitney.

Secretary-Treasurer, H. F. Willard.

Executive Committee, Dr. J. F. Illingworth, W. M. Giffard.

Presidential Address

BY E. H. BRYAN, JR.

PAPERS

"On a new Genus, with two new Species of Hawaiian Cerambycidae. (Col.)

BY DR. R. C. L. PERKINS.

(Title submitted by O. H. Swezey.)

"Notes on the Egg-parasites of Insects in Hawaii."

BY O. H. SWEZEY

"Further Notes on the Insects of Molokai."

BY O. H. SWEZEY AND E. H. BRYAN, JR.

NOTES AND EXHIBITIONS.

Acrodrepanis megalopylla (Meyr.).—Mr. Swezey exhibited a specimen of the male of this species, which had been collected by a friend of a student of the University of Hawaii at Kaumana near Hilo. There are no specimens of the male of this species in any collections in Honolulu, and this is the first specimen seen by any of the present entomologists in Hawaii.

Two new immigrant flies.—Mr. Swezey exhibited specimens of two species of flies not previously known here. They were collected by sweeping in rice fields in the Pearl Harbor district of Oahu. He was unable to determine them, but apparently one of them was a species of *Ortalis*.

Telenomus nawai Ashm.—Mr. Swezey reported having found four egg clusters of *Spodoptera mauritia* (Boisd.) on leaves of a small *Ficus* tree at the Kamehameha School grounds Nov. 8, 1928. Two of the egg clusters were parasitized by *Telenomus* as indicated by their appearance. The other two were collected and kept in a vial. On Nov. 11, caterpillars hatched from one egg cluster; and on Nov. 21, *Telenomus* issued from the other egg cluster. As three of the four egg clusters were parasitized, and 100% parasitized in each cluster, while the cluster from which caterpillars hatched had none that were parasitized, the actual parasitization was 75%.

Hymenoptera from China.—Dr. Williams reported that the following Hymenoptera from material collected by F. C. Hadden in China had been identified by Cushman of the U. S. National Museum as follows:

Sp. A—*Amyosoma chilonis* Vier.

Sp. D—*Centeterus alternecoloratus* (n. sp.) Cushman.

Sp. E—*Chelonus chilonis* (n. sp.) Cushman.

✓ Sp. X—*Dioctes chilonis* (n. sp.) Cushman. ✓

These are parasites of the *Chilo* rice borer, and a number of Sp. A (*Braconidae*) and Sp. X (*Ichneumonidae*) were liberated in

a rice field near Pearl City. The paper by Cushman describing these three new species received for publication.

Copris incertus var. *prociduus* Say.—Dr. Williams reported that a beetle collected in Mexico by H. T. Osborn had been identified as this species by Fisher of the U. S. National Museum. This beetle is established on the Island of Maui and helps destroy the breeding places of the hornfly.

Erebus odora (L.).—Mr. Bryan noted that this moth known as the Black Witch had been observed in Hawaii as follows:

Kona, Hawaii, Honaunau, October 15th, 1928. (Mason).

Manoa, Oahu, Parker St., November 7th (Krauss).

Woodlawn, Manoa, November 8th. (Williams).

Punahou, November ? (Mrs. Greenwell).

Nuuanu, November 14th. (Waldron).

Manoa. (Ehrhorn).

These observations indicate that this moth is a new immigrant that has become established here, especially as some of the specimens collected were in perfect condition as though they had but recently emerged.

Annual Address

BY E. H. BRYAN, JR.

(Presented at the meeting of December 10, 1928)

This meeting celebrates the twenty-fourth anniversary of the founding of our entomological society. Twenty-two of my predecessors have presented annual addresses. These have varied greatly in subject. The majority have been papers of a systematic nature: descriptions of new species, lists of insects from various regions, or life-history notes. A few have been on economic problems. Two have been ecological discussions; two philosophical dissertations; and two summaries of past work in entomology.

I am unable to give you a systematic paper; my recent work has led me far afield from taxonomy and systematic study in entomology. Neither am I philosophically inclined. You have all heard enough about the past. What I propose to do for a few minutes this afternoon is rather to glance into the future; to try to point out one of Hawaii's greatest entomological needs, and how I believe this society can remedy that need.

A fortunate sequence of events has placed Hawaiian entomology on a very high level. The insect fauna of few regions is better known, and our work on the biological control of insect pests is a classic example. The series of events which has brought this about begins with the Rev. Thomas Blackburn, who may well be called the "Father of Hawaiian entomology." His enthusiastic collecting during a six year residence in these islands awakened the interest of European entomologists in the unique features of our insect fauna. This resulted in the extensive systematic collecting by Dr. R. C. L. Perkins. His collecting not only made possible the publishing of the "Fauna Hawaiiensis," but his presence in the islands at the time of the sugar cane leafhopper outbreak did much to bring about the control of that pest by introducing natural enemies. The successful control of this and other insect pests in Hawaii demonstrated the value of economic entomology, and led to the establishing of our large, well equipped laboratories, manned by capable entomologists. Finally, the presence of such a group of trained entomologists in the Territory, and their organization into this society, has greatly increased the knowledge of our insect

fauna. With the printing of this year's Proceedings, this society will have published about three thousand pages of notes and papers on Hawaiian and other Pacific insects. Collections of insects and technical data are therefore not Hawaii's greatest need in entomology, although much remains to be done in both these lines.

The same may be said of economic entomology. One after another the insects pests of Hawaii have been brought under control, and a group of experts stand ready to combat any which may appear. The sugar cane leafhopper, sugar cane beetle borer, anomala beetle, armyworms, mealybugs, scale insects, leafrollers are all controlled by natural enemies. Even the fruit flies have been greatly reduced in number. The rice borer appears in our fields, and at once measures are taken to combat it. Termites attack our houses and poles, and a strenuous campaign is waged against them. Our ports are guarded against a constant bombardment of pests, by efficient quarantine service. No, there is no deficiency in this field of entomology in Hawaii, although we should continue to give it our full support. What then do we lack?

Our great need is for comprehensive and readily accessible general information about Hawaiian insects, which can be understood by those not trained in entomology. I find this need on all sides: among scientifically inclined visitors, amateur collectors, teachers in our schools, students of all grades, our boys and girls. How can we expect people to take an interest in our insect life, if there is no simple source of information from which they can learn about it? Where will we get our entomologists of tomorrow? No doubt from elsewhere, as in the past. But why not from Hawaii! Despite all their training in "nature study," the students who enter my classes at the University of Hawaii scarcely know what an insect is. And what else can you expect when the average teacher in the schools knows so little about our insect life, and has such scanty understandable source of information about it? At the Museum I am frequently asked, "Haven't you any book about Hawaiian insects?" Why not make available for these various groups the information they desire? That is what I consider our greatest entomological need in Hawaii.

You will recall what Professor Needham said when he spoke before this society last summer, on his way home from a short stay in China. He said in substance, "Yes, my teaching experiences in

China were successful. But I think my best contribution out there will be one I wasn't paid for. I collected all the species of dragonflies I could find, and I am going to write them an illustrated handbook on the dragonflies of China. What they need most is information about their insect life."

Professor Tillyard's greatest contribution to entomology is his "Insects of Australia and New Zealand." Think how many future entomologists in that vast region will have gotten their start from that splendid book. In like manner, the greatest contribution of Professor Essig is his "Insects of Western North America;" of Dr. Britton, his series of guides to the insects of Connecticut; of our beloved Professor Comstock, his monumental "Introduction to Entomology."

Why cannot this society produce a similar account of the Hawaiian insects? There is no dearth of data. Some of us can almost produce sections of it from our heads, with very little research. In this connection let me commend the splendid papers by Dr. Williams on the bees and wasps of Hawaii, and the Kamehameha butterfly. It is this type of contributions that we need. In a rash moment of enthusiasm I outlined a book on the Hawaiian insects and actually wrote two chapters. But the more I wrote the more inadequate I felt to produce such a book. To write a really accurate, authentic and yet readable handbook, one must be thoroughly familiar with every detail of the subject. Then the idea occurred to me, why not make this a cooperative undertaking, each one of the entomologists to write on the group with which he is most familiar. It is that proposition that I submit to you at this time.

What could be more fitting than that we should celebrate the twenty-fifth anniversary of this society, next year, with the publication of an "Introduction to the Hawaiian Insects"? No one of us, because of the press of our other duties, could undertake the task alone. But working together we could do it easily. Much of the work would be simply compilation. One of us, I am sure, could find time to do the editing. The publication of such a book would be simple enough. Similar books have been or are being written on our trees, weeds, and coral reef life, and their publication is certain. I have already been assured that a book on Hawaiian insects can be published as soon as written. Will you all cooperate with me in this undertaking?